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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/807,904	06/08/2001	Toshiya Watanabe	330-235	7476

23117 7590 04/08/2003

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EXAMINER

ZACHARIA, RAMSEY E

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 04/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/807,904

Applicant(s)

WATANABE ET AL.

Examiner

Ramsey Zacharia

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5,6,8-30,32,33 and 35-37 is/are rejected.
- 7) ☒ Claim(s) 4,7,31 and 34 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Objections

2. Claims 24 and 36 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. These claims do not appear to add any limitations to the claims from which they depend.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claims 1, 5, 11, 17, 19-30, 32, 33, and 35-37 are rejected under 35 U.S.C. 102(b) as being anticipated by Liepins (U.S. Patent 4,390,567).

Liepins teaches a graded coating comprising a metal compound applied to a polymer substrate (column 2, line 59-column 3, line 8). The metal compound may be a metal resinate and the coating is a graded coating, i.e. a higher concentration of metal on the surface with the

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concentration decreasing through the thickness (column 3, lines 14-22). The metal resinate is a long chain organic molecule wherein one site is occupied by a metal (column 5, lines 37-39). That is, the metal resinate is a polymer (long chain organic molecule) bonded to a metal. In the embodiment of Example 1, the metal resinate layer has a thickness of 5-6 μm , which reads on a thickness of 5 μm or less. The final structure comprises a pure polymer layer, a graded zone of polymer and resinate metal, and an electrically conductive metal outer layer (column 7, line 55-column 8, line 15). While resins of gold and platinum result in an outer surface that is electrically conductive, metal combinations may also be used such as B-Au and B-Pt which should result in dielectric outer surfaces that read on instant claim 35 (column 7, lines 36-40).

Regarding claims 11, 30, 32, 33, and 35-37, while Liepins does not teach the addition of a metallic layer over the graded coating layer, there is an explicit teaching that the outer surface of the graded layer is a metallic layer (column 7, lines 55-66). Therefore, the product of Liepins would read on the product of claims 11, 30, 32, 33, and 35-37, since it would comprise a polymer substrate, a metallic layer, and a layer comprising a graded metal resinate layer between the substrate and the metallic layer. That the metallic layer applied as a separate coating layer in the instant claims may also be seen as a product-by-process limitation since the final product in both cases (an article with three distinct layers) appears to be the same.

Regarding claims 20-27, the limitations in these claims are taken to be intended uses of the product since these claims do not require multiple layers, just that the organic-inorganic composite is for use as an adhesive or an intermediate film. It has been held that a recitation with respect to the manner in which a claimed product is intended to be employed does not

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differentiate the claimed product from a prior art product satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

5. Claims 1-3, 5, 6, 8-29, and 32 are rejected under 35 U.S.C. 102(a) as being anticipated by JP 11-221880.

Note: because a complete translation of this document was not available at the time of this action, a Derwent abstract and machine translation of the document are provided.

JP 11-221880 teaches a coating film layer comprising a hybrid high molecular weight material having an organic structure covalently bonded to an inorganic structure using at least one metal (Derwent abstract). The material is formed through hydrolysis and dehydration, i.e. condensation (Derwent abstract). The layer further comprises a (meth)acryloyloxy material and the ratio of the hybrid material to the (meth)acryloyloxy material changes continuously (Derwent abstract). The layer further comprises a polymerization initiator and the product made by applying the coating, heating, then irradiating to crosslink the hybrid material to the (meth)acryloyloxy material together (Derwent abstract). Therefore, the final material will be the (meth)acryloyloxy material chemically bonded to the hybrid material (which itself contains metal covalently bonded to an organic high-molecular weight material). The coating may be applied to organic substrates such as plastic, wood, and paper (Derwent abstract). The coating may have a thickness of as low as 1 μm (paragraph 0048). The hybrid material may be formed from vinyl alkoxysilane monomers which are subject to hydrolysis and condensation (paragraphs 0014-0017), which should lead to the formation of metal oxides.

Regarding claims 20-27, the limitations in these claims are taken to be intended uses of the product since these claims do not require multiple layers, just that the organic-inorganic composite is for use as an adhesive or an intermediate film. It has been held that a recitation with respect to the manner in which a claimed product is intended to be employed does not differentiate the claimed product from a prior art product satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

Allowable Subject Matter

6. Claims 4, 7, 31, and 34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter.

Claims 4 and 7 are directed to an inorganic-organic graded material as recited in claim 1 and further wherein the metallic compound is a metal nitride that is bonded to the organic polymer through a metal-oxide containing compound. Claims 31 and 34 are directed to three layer structures comprising a substrate, an intermediate layer of the graded material, and a layer of a photocatalytic material.

Liepins and JP 11-221880 represent the closest prior art. However, these references do not teach or fairly suggest the use of a metal nitride compound bonded to the macromolecule through a metal oxide compound. Nor do they teach or fairly suggest the addition of a photocatalytic layer over the organic-inorganic layer.

Response to Arguments

8. Applicant's arguments with respect to claims 1-37 have been considered but are moot in view of the new ground(s) of rejection. In view of the complete English language translation of JP 8-283425 A now available, the examiner agrees that JP 8-283425 A does not teach a metallic compound chemically bonded to an organic polymer but rather a physical mixture of a metal oxide and an organic polymer.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramsey Zacharia whose telephone number is (703) 305-0503. The examiner can normally be reached on Monday through Friday from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau, can be reached on (703) 308-2367. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310 for non after-final correspondences and (703) 872-9311 for after-final correspondences.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Ramsey Zacharia
Primary Examiner
Technology Center 1700
4/4/03